

### **REMARKS**

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 28-37 are presently active in this case. Claims 1-27 were cancelled by a previous amendment. The present Amendment amends Claims 28 and 34 without introducing any new matter.

The outstanding Office Action rejected Claims 28, 31, and 34-35 under the obvious-type non-statutory double-patenting doctrine over the reference U.S. Patent No. 7,301,653. Claims 28 and 34 were objected to under 37 C.F.R. § 1.75(a) as not distinctly claiming the subject matter. Claims 30, 32 and 36 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 30, 32, and 36 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 28-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over (U.S. Patent No. 6,052,200, hereinafter “Mitani”) and further in view of Shimizu et al. (U.S. Patent No. 6,052,202, hereinafter “Shimizu”).

Independent Claims 28 is amended to recite features related to the gradual reduction of the a maximal memory size by the image data management unit. These features find non-limiting support in Applicants’ disclosure as originally filed, for example in Fig. 22, steps S501-S505, and in the specification starting at p. 40, l. 24. to p. 42, l. 2. Independent Claim 34 is amended to recite an analogous feature, but directed to a method. No new matter has been added.

In response to the non-statutory obviousness-type double-patenting rejection, because independent Claims 28 and 34 have been amended to patentably distinguish over the claims of U.S. Patent No. 7,301,653, this rejection is now mooted.

In response to the objection to Applicants' Claims 28 and 34 under 37 C.F.R. § 1.75(a) as not clearly pointing out and distinctively claim the features of the invention, Applicants traverse the objection. Applicants have clearly indicated in the last response on p. 6, ll. 21-22 that the "hardware image processing unit" of Claim 28 finds non-limiting support in Fig. 1, element 45, directed to a Media Link Board (MLB). In addition, the specification explains "[h]ere, MLB 45 is a hardware item to convert a format of image data into another format at a high speed." (Specification, p. 15, ll. 8-10.) Applicants have therefore provided a clear and consistent description for this claimed element, as required by 37 C.F.R. § 1.75(a) and 35 U.S.C. § 112, second paragraph.

In addition, Applicants is entitled to be his own lexicographer when drafting claim terms, as long as it is done "with reasonable clarity, deliberateness, and precision." See M.P.E.P. 2111-IV, and see In re Paulsen, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994).

In response to the rejection of Claims 30 under 35 U.S.C. § 112, first paragraph, regarding the claim element "an availability determination register," this element clearly finds non-limiting support in the disclosure as originally filed, for example in Fig. 3, element 62. Regarding Claims 32 and 36, the reservation of the target memory size is clearly explained in the specification starting at p. 38, l. 24, and in Fig. 21. Regarding the feature "modifying a size of the target memory size by an algorithm in a step-wise fashion" is clearly supported at p. 41, ll. 3-22, and Figs. 22 and 24, "memory size."

In response to the rejection of Claims 28-37 under 35 U.S.C. § 112, second paragraph, Applicants traverse the rejection because all the features of the claims are definite. For example Claim 28 recites "one of the first conversion function or the at least one second hardware conversion function," thereby referring to the possibility that it can be either (a) the first conversion function, (b) the at least one second hardware conversion function, or (c)

both. A similar rationale is applicable to the remaining features of the claims that have been rejected under 35 U.S.C. § 112, second paragraph. Therefore, Applicants respectfully traverse the rejection.

In response to the rejections of Claims 28-37 under 35 U.S.C. § 103(a), in light of the amendments to the claims, these rejections are now moot. Therefore, Applicants respectfully request reconsideration of these rejections and traverse the rejections, as discussed next.

Briefly recapitulating, Applicants' Claim 28 relates to an image forming apparatus configured to be connected to a plurality of hardware resources by a system bus. The image forming apparatus includes, *inter alia*, an image conversion unit configured to process image data by software with a first conversion function to convert an image into a different format, and configured to access and to send the image data to a hardware image processing unit over the system bus that is configured to process the image data by hardware with at least one second hardware conversion function; wherein the image conversion unit is further configured to access a register of the hardware image processing unit over the system bus to determine which ones of the at least one second hardware conversion functions are available for conversion of the image data. In addition, when the image data management unit fails to acquire a memory area corresponding to a maximal memory size, the image data management unit attempts to acquire a memory area corresponding to a smaller memory size gradually reduced from the maximal memory size by gradually subtracting a memory size unnecessary to convert the format of the image data from the maximal memory size.

Turning now to the applied references, Mitani describes a memory management method that holds a memory capacity down, to prevent printing overrun by memory deadlock. (Mitani, Abstract, col. 1, ll. 46-50.) In Mitani's method, the memory size required for printing data is calculated, and after a data conversion is performed, the data size of the converted printing data in the memory is verified. (Mitani, col. 1, ll. 53-64.) Mitani thereby

selects different compression rates of when performing image data conversion as a function of the available memory space. (Mitani, col. 15, ll. 23-48.) However, Mitani fails to teach all the features of Applicants' Claim 28. In particular, Mitani fails to teach

when the image data management unit fails to acquire a memory area corresponding to a maximal memory size, the image data management unit attempts to acquire a memory area corresponding to a smaller memory size gradually reduced from the maximal memory size by gradually subtracting a memory size unnecessary to convert the format of the image data from the maximal memory size.

(Claim 28, portions omitted.) Nowhere in the cited passages of Mitani there is a teaching related to an image data management unit that can acquire a memory area corresponding to a smaller memory size gradually reduced from the maximal memory size by gradually subtracting a memory size unnecessary to convert the format of the image data from the maximal memory size.

The applied reference Shimizu, used by the pending Office Action to form the 35 U.S.C. § 103(a) rejection, fails to remedy the deficiencies of Mitani, even if we assume that such a combination is proper. Shimizu is directed to a printer that can calculate an available memory capacity when receiving data from a computer to be printed. (Shimizu, col. 1, ll. 9-17, col. 2, ll. 36-42, ll. 59-62.) Shimizu explains that the memory resource that can be allocated to a print job may be varied in dependence of the type of document or size of document to be printed. (Shimizu, col. 7, ll. 29-42, Fig. 3.) However, the cited passages of Shimizu do not teach anything related to Applicants' Claim 28 image data management unit. Again the cited passages of Shimizu at least fail to teach an image data management unit that can acquire a memory area corresponding to a smaller memory size gradually reduced from the maximal memory size by gradually subtracting a memory size unnecessary to convert the format of the image data from the maximal memory size, as required by Claim 28.

Therefore, even if the combination of Mitani and Shimizu is assumed to be proper, the cited passages of the combination fails to teach every element of Applicants' independent Claim 28. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections under 35 U.S.C. § 103(a) based on these references.


Claim 34 is directed to a different statutory class, but recite some features that are analogous to the features of Claim 28. Accordingly, for the reasons stated above for the patentability of Claims 28, Applicants respectfully submit that Claim 34, and the associated dependent claims, are also believed to be allowable.

Consequently, in view of the present Amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 28-37 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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